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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,420	03/01/2005	Masakatsu Yamashita	0941-1717PUS1	3082

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EXAMINER

HO, BAO QUAN T

ART UNIT	PAPER NUMBER
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2629

NOTIFICATION DATE	DELIVERY MODE
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12/14/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/526,420

Applicant(s)

YAMASHITA ET AL.

Examiner

Bao-Quan T. Ho

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-16 is/are rejected.
- 7) ☒ Claim(s) 10 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 7 recites the limitation "said AD converting means..." and "said operation means determines said amounts of change from said first digital signal" is not found in either claim 1 nor 6, but it is found in claim 2 in lines 2 and 4-5 of claim 7. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1, 4-5, and 8-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Asada et al. (hereafter referenced as Asada), US Patent 5,883,609, in view of Wood et al. (hereafter referenced as Wood), US Patent 5,926,162.

Regarding claim 1, Asada discloses in figure 5 an image display device (10) comprising a plurality of gate buses (gate lines GP), a plurality of source buses (data lines DS), transistors (transistor shown in each pixel Px) each of which for supplying a pixel electrode (top electrode of pixel Px) with a voltage from said source bus, a common electrode (bottom electrode of pixel Px),

a changing voltage generating means (GP Pulses) for generating a first changing voltage having changing voltage levels for setting said transistor to an on-state and a second changing voltage having changing voltage levels for setting said transistor to an off-state (Since Asada's display is an active matrix, the gate pulses GP has both levels to control ON, when gate pulse GP is high, and OFF, when gate pulse GP was low, of the transistors, so that image can be written, see timing charts in Fig. 8, 9, and 11),

said changing voltage generating means operating so as to establish at least three supply modes including a first supply mode, a second supply mode and a third supply mode (double, 4-fold, and 1.6-fold modes shown in Fig. 8, 9, and 11, respectively),

said first supply mode (double mode, Fig. 8) in which said first changing voltage is supplied to a first number of ones of said plurality of gate buses (GP1-GP2) and said second changing voltage is supplied to a second number of ones of said plurality of gate buses (GP3-GP1024) (a dual-line simultaneous scan during the double mode, for example, gate lines GP1 and GP2 are ON simultaneously while gate lines GP3-GP1024 are OFF in the first period of T during the image writing period, col. 16 lines 13-18),

said second supply mode (4-fold mode, Fig. 9) in which said first changing voltage is supplied to a third number of ones of said plurality of gate buses (GP1-GP4) and said second changing voltage is supplied to a fourth number of ones of said plurality of gate buses (GP5-GP1024) (a 4-line simultaneous scan during the 4-fold mode, for example, gate lines GP1-GP4 are ON simultaneously while gate lines G5-G1024 are OFF in the first period of T during the image writing period, col. 17 lines 4-9), and

said third supply mode (1.6-fold mode, Fig. 11) in which said first changing voltage is supplied to a fifth number of ones of said plurality of gate buses (GP2-GP3) and said second changing voltage is supplied to a sixth number of ones of said plurality of gate buses (GP1 and GP4-GP1024) (a dual-line simultaneous scan in a single-line sequential scan during the 1.6-fold, for example, after gate line GP1 is ON, while gate lines GP2-GP1024 are off in the first period T during the image writing period, the next period T during the image writing period will turn ON gate lines GP2 and GP 3, while gate lines GP1 and GP4-GP1024 OFF, Fig. 11 in col. 18 lines 60-67);

But, Asada does not specifically teach a corrected voltage supplying means for supplying said common electrode with a common electrode voltage which has been corrected by an amount of correction and a corrected voltage generating means for detecting a voltage on said common electrode to determine said amount of correction on the basis of amounts of change in said detected voltages on said common electrode.

However, Wood teaches a corrected voltage supplying means (amplifier 512, Fig. 5 in col. 9 lines 22-32) for supplying said common electrode with a common electrode voltage which has been corrected by an amount of correction and a corrected voltage generating means for detecting a voltage on said common electrode to determine said amount of correction on the basis of amounts of change in said detected voltages on said common electrode (a parasitic capacitance compensation signal generator 402 generates a signal corresponding to the effect of the parasitic capacitances of the TFTs 208 on the gate drive signals G_n and adjusts the voltage applied to the common electrode 114, Fig. 5 in col. 7 lines 33-45). Thus combining Asada and Wood would meet the claimed limitation "a corrected voltage supplied means..." as recited in the claim.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to have used the corrected voltage supplying means as taught by Wood to correct the common electrode during at least one of the three modes established by Asada for the purpose of reducing the inadvertent accumulation of a charge differential across the liquid crystal layer (col. 2 lines 56-62).

Regarding claim 4, Asada discloses wherein said corrected voltage supplying means comprises a predetermined voltage generating means (horizontal drive circuit 103) for generating a predetermined voltage to supply said source bus (source line DS) with said predetermined voltage,

and wherein said plurality of source buses are supplied with said predetermined voltage in each of said at least three supply modes (Asada teaches all three modes to

be perform during the image writing period as shown in Fig. 8, 9; and 11, for example, in double mode the image data will be supplied to the respective pair of neighboring source buses with those gate lines activated and no image data will be supplied to the respective source buses with those scanning lines not activated within the image writing period, col. 16 lines 16-18).

Regarding claim 5, Asada discloses wherein said predetermined voltage generating means (horizontal drive circuit 103) generates a constant voltage as said predetermined voltage (gate buses that are not activated will have no image data supplied to the source lines respective to the gate lines as shown in Fig. 8, 9, and 11, therefore there would be a constant voltage of zero volt supplied to the source lines with gate lines that are OFF).

Regarding claim 8, Asada does not specifically discloses wherein said changing voltage generating means operates so as to establish said at least three supply modes when a power supply of said image display device is turned from off to on.

However, it would have been obvious to one of ordinary skill in the art at the time of invention was made to have the changing voltage generating means operates so as to establish said at least three supply modes when a power supply of said image display device is turned from off to on for the purpose of adapting to a projector, TV, or computer as they can have different signal sources such as bandwidth, pixel number, and scan modes (Asada: col. 1 lines 18-54).

Regarding claim 9, Asada in view of Wood does not specifically discloses wherein said changing voltage generating means operates so as to periodically

establish said at least three supply modes under the condition that an power supply of said image display device is in an on.

However, it would have been obvious to one of ordinary skill in the art at the time of invention was made to have changing voltage generating means operates so as to periodically establish said at least three supply modes under the condition that an power supply of said image display device is in an on-state for the purpose of adapting to a projector, TV, or computer as they can have different signal sources such as bandwidth, pixel number, and scan modes (Asada: col. 1 lines 18-54).

6. **Claims 2-3, 7, and 11-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Asada, in view of Wood, and in further view of Kurz, US Patent 4,810,973.

Regarding claim 11, this claim differs from claim 1 in that the limitations "a first detection...", "a storing means...", and "a DA converting means..." are additionally recited.

Asada does not specifically teach the additional limitations "a first detection...", "a storing means...", and "a DA converting means..." as recited.

However, Kurz teaches in Fig. 1,

a first detection terminal (AD) for detecting a offset voltage (col. 2 lines 5-32);

a storing means (Control circuit ST) for storing a compensation voltage which is determined on the basis of amounts of change in the detected voltages of the offset voltage through said first detection terminal (col. 2 lines 33-45); and

a DA converting means (DA) supplied with said compensation voltage stored in said storing means (control circuit ST) as a digital signal, said DA converting means (DA) converting said supplied digital signal into an analog voltage and outputting said analog voltage to control SG (col. 2 lines 5-32). Thus combining Asada in view of Wood with Kurz would meet the additionally claimed limitations "a first detection...", "a storing means...", and "a DA converting means...".

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to have used the offset voltage correction circuitry as taught by Kurz to detect and correct the common electrode during at least the three modes of Asada in view of Wood for the purpose of having the offset voltage be recompensated every time the equipment is turned on, which in turn lets the user avoid maintenance of the equipment (col. 3 lines 25-41).

Regarding claim 2, Kurz teaches wherein a corrected voltage generating means comprises (circuitry of Fig. 1):

an AD converting means (AD) for detecting a offset voltage as an analog voltage to convert said detected analog voltages into first digital signals (col. 2 lines 5-32);

an operation means (Control circuit ST) for determining amounts of change in said detected analog voltages from said first digital signals and determining said amount of correction on the basis of said determined amounts of change to output an digital signal representing said offset voltage which has been corrected by said determined amount of correction (compensation voltage, col. 2 lines 33-45);

a DA converting means (DA) for converting said digital signal outputted from said operation means into an analog voltage (col. 2 lines 5-32), and

a switching means (variable switch S) for switching between a first connection mode in which said offset voltage is connected to said AD converting means, when the switch is open, and a second connection mode in which said offset voltage is connected to said DA converting means, when the switch is closed (col. 2 lines 5-32).

Thus combining Asada in view of Wood with Kurz would meet the limitation of the circuitry "an AD...", "an operation...", "a DA...", and "a switching..." to operate with the common electrode at least during one of the three modes.

Regarding claim 3, Kurz discloses wherein said corrected voltage generating means (circuitry of Fig. 1) comprises a storing means (Control circuit ST) for storing said corrected common electrode voltage (compensation voltage) represented by said digital signal (offset voltage is converted to digital via AD converter) outputted from said operation means,

and wherein said DA converting means (DA) converts said corrected common electrode voltage (compensation voltage) stored in said storing means into an analog voltage, instead of converting said digital signal outputted from said operation means into an analog voltage (col. 2 lines 5-45).

Regarding claim 7, Kurz discloses wherein said AD converting means (AD) detects a on-voltage and a off-voltage (offset voltage) as an analog voltage and converts said detected analog voltage into a second digital signal (the second digital signal is the signal outputted from the AD converter, col. 2 lines 5-32),

and wherein said operation means (control circuit ST) determines said amounts of change from said first digital signal (the first digital signal is the signal outputted from the AD converter) and values of said on-voltage and said off-voltage from said second digital signal (the second digital signal is the next signal outputted from the AD converter when the variable switch S opens again), and determines said amount of correction (compensation voltage) on the basis of said determined amounts of change and said determined values of said on-voltage and said off-voltage (col. 2 lines 5-45).

Regarding claim 12, Kurz discloses wherein said corrected voltage generating means (circuitry of Fig. 1, col. 2 lines 5-32) comprises an switching means (variable switch S) for switching between a first connection mode (variable switch S opened) in which said common electrode (line that carries signal F) is connected to said first detection terminal (AD) and a second connection mode (variable switch S closed) in which said common electrode (line that carries signal F) is connected to said DA converting means (DA).

Regarding claim 13, Asada discloses wherein said corrected voltage supplying means comprises a predetermined voltage generating means (horizontal drive circuit 103) for generating a predetermined voltage to supply said source bus (source line DS) with said predetermined voltage,

and wherein said plurality of source buses are supplied with said predetermined voltage in each of said at least three supply modes (Asada teaches all three modes to be perform during the image writing period as shown in Fig. 8, 9, and 11, for example, in double mode the image data will be supplied to the respective pair of neighboring

source buses with those gate lines activated and no image data will be supplied to the respective source buses with those scanning lines not activated within the image writing period, col. 16 lines 16-18).

Regarding claim 14, Asada discloses wherein said predetermined voltage generating means (horizontal drive circuit 103) generates a constant voltage as said predetermined voltage (gate buses that are not activated will have no image data supplied to the source lines respective to the gate lines as shown in Fig. 8, 9, and 11, therefore there would be a constant voltage of zero volts supplied to then source lines with gate lines that are OFF).

7. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Asada, in view of Wood, and in further view of Yamaguchi et al. (hereafter referenced as Yamaguchi), US Patent 5,307,084.

Regarding claim 6, Asada in view of Wood discloses an image display device as claimed in claim 1,

Asada also discloses wherein said changing voltage generating means comprises:

a plurality of output circuits (NAND gate circuits 15-1 to 15-1024, Fig. 5 with timing charts in Fig. 8, 9, and 11), each of which provided for a respective one of said plurality of gate buses (gate lines GP1-GP1024), for selectively outputting an on-voltage (high level signal GP) of a constant value for setting said transistor to an on-state and

an off-voltage (low level signal GP) of a constant value for setting said transistor to an off-state;

But, Asada in view of Wood does not specifically teach a signal generating circuit for generating a changing voltage signal which represents a predetermined changing voltage; and

a plurality of adders, each of which provided for a respective one of said output circuits, for adding said predetermined changing voltage to said on-voltage when said on-voltage is outputted from the corresponding output circuit to output said first changing voltage, and for adding said predetermined changing voltage to said off-voltage when said off-voltage is outputted from the corresponding output circuit to output said second changing voltage.

However, Yamaguchi teaches a signal generating circuits (distortion detection circuit 12) for generating a changing voltage signal (signal coming from feedback line 102) which represents a predetermined changing voltage (compensation voltage) (Fig. 14 in col. 12 lines 2-8); and

a plurality of adders (103 and 104), each of which provided for a respective one of said output circuits (seen in Fig. 4 with unnamed triangular element to the left of the adder circuit 103 and 104 inside power source circuit 4), for adding said predetermined changing voltage to said on-voltage when said on-voltage is outputted from the corresponding output circuit to output said first changing voltage, and for adding said predetermined changing voltage to said off-voltage when said off-voltage is outputted from the corresponding output circuit to output said second changing voltage

(Compensation voltage generation circuit 9 sends compensation voltage via feedback line 102 into adders 103 and 104 and changing voltages V2 and V5, Fig. 14 in col. 12 lines 4-8). Thus combining Asada in view of Wood with Yamaguchi would meet the claimed limitations "a signal generating circuit..." and "a plurality of adders...".

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to have used a signal generating circuit with a plurality of adder as taught by Yamaguchi to change gate voltages of Asada for the purpose of canceling the cross-talk which develops on cells on unselected scan electrode (col. 1 lines 64-68 to col. 2 lines 1-2).

8. **Claims 15 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Asada, in view of Wood, in further view of Kurz, and in further view of Yamaguchi.

Regarding claim 15, rejection is the same basis as rejected on above claim 6.

Regarding claim 16, Wood discloses wherein said corrected voltage supplying means (amplifier 512, Fig. 5 in col. 9 lines 22-32) comprises a second detection terminal (e.g. gate drive signal G_n , where $n=2$) for detecting said on-voltage and a third detection terminal (e.g. gate drive signal G_n , where $n=3$) for detecting said off-voltage, and

wherein Kurz discloses the storing means (Control circuit ST, col. 2 lines 33-45) stores said corrected common electrode voltage (compensation voltage), and

wherein Wood discloses the corrected common electrode voltage which is determined on the basis of said amounts of change in said detected voltages (parasitic

capacitance compensation signal generator 402, Fig. 5 in col. 7 lines 33-60) on said common electrode through said first detection terminal (e.g. gate drive signal G_n , where $n=1$), a value of said detected on-voltage through said second detection terminal (e.g. gate drive signal G_n , where $n=2$), and a value of said detected off-voltage through said third detection terminal (e.g. gate drive signal G_n , where $n=3$) (col. 7 lines 33-60)

Thus the combination of Wood supplying the corrected voltage base on multiple detected voltages via detection terminals and using the storage of Kurz to store the corrected voltages would meet the claimed limitations.

Allowable Subject Matter

9. Claims 10 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bao-Quan T. Ho whose telephone number is (571) 270-3264. The examiner can normally be reached on M-F, 7:30 am to 5:00 pm EST, alt. Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh D. Nguyen can be reached on (571) 272-7772. The fax phone

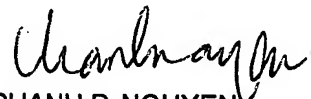
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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BTH


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SUPERVISORY PATENT EXAMINER